

FIGURE ONE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO CANADA  
(40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

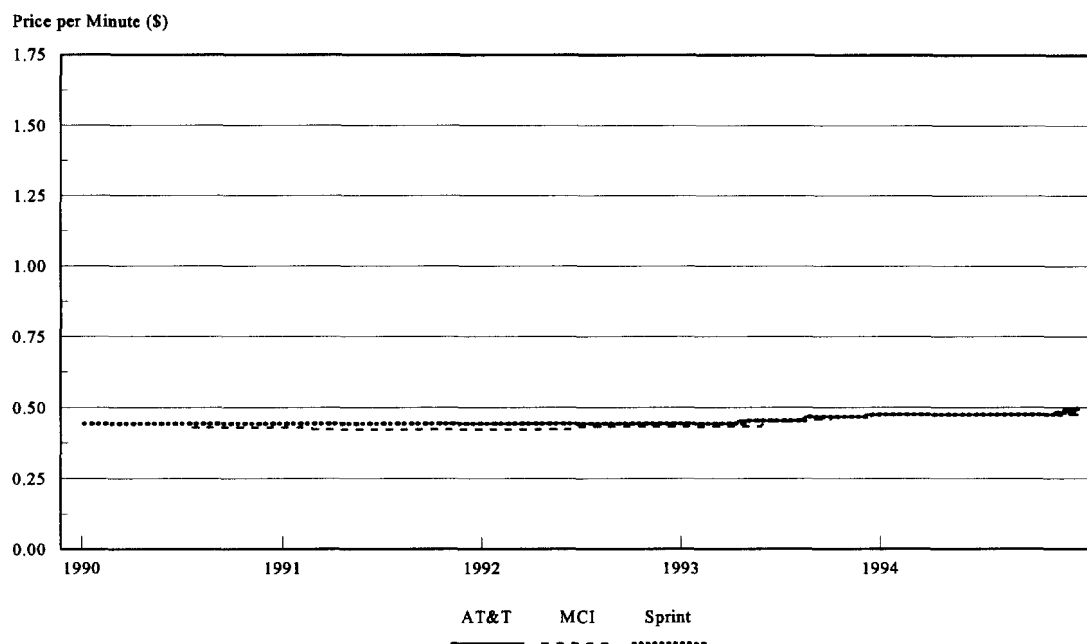


FIGURE TWO  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO MEXICO  
(40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

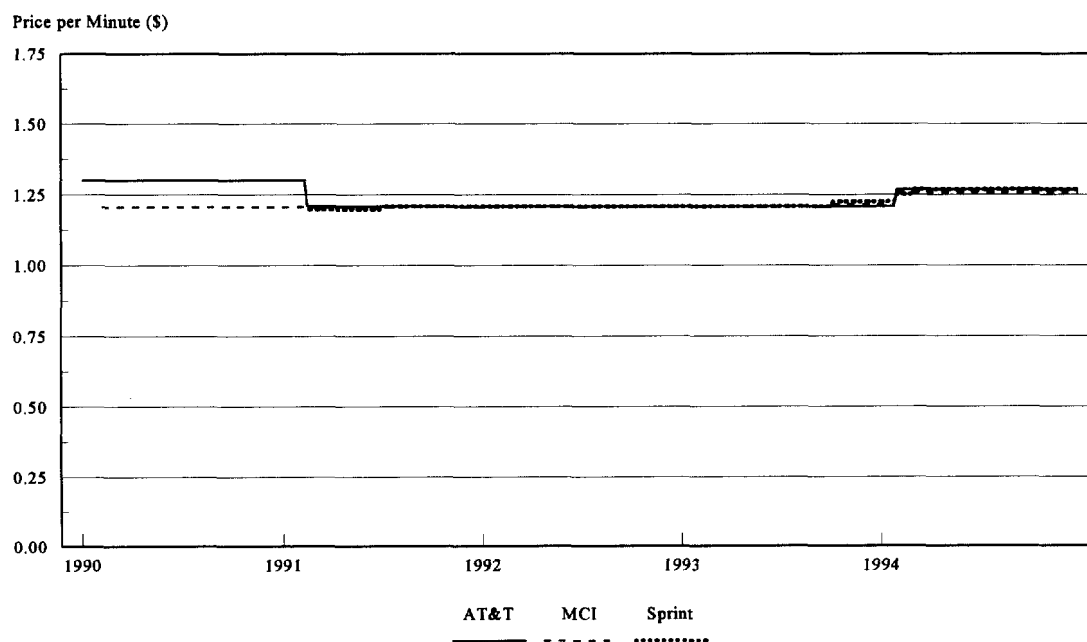


FIGURE THREE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO UNITED KINGDOM  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

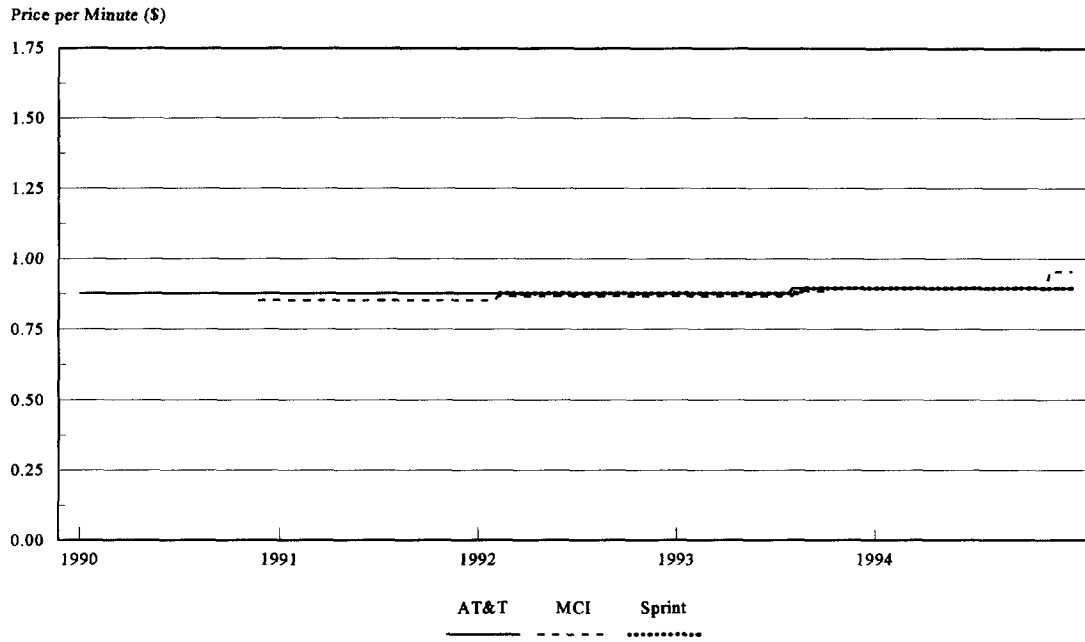


FIGURE FOUR  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO GERMANY  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

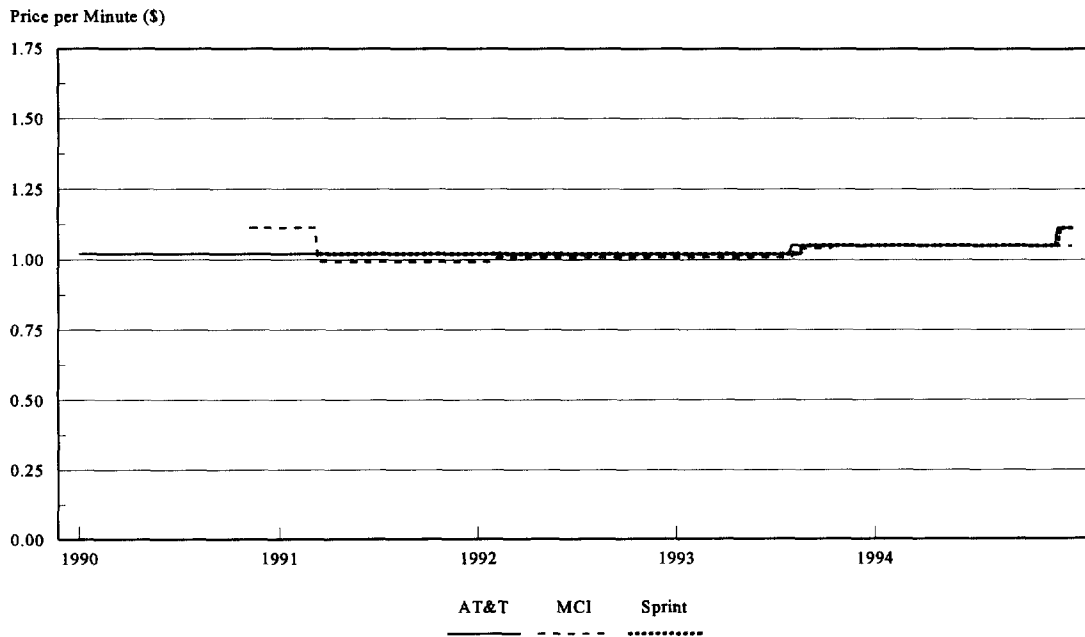


FIGURE FIVE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO FRANCE  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

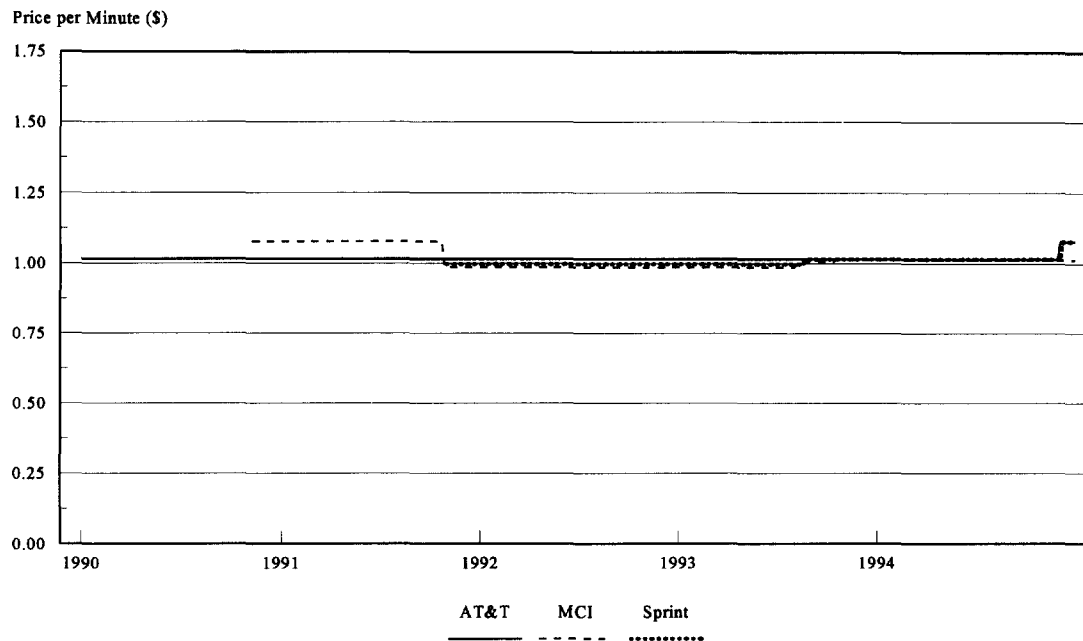


FIGURE SIX  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO ITALY  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

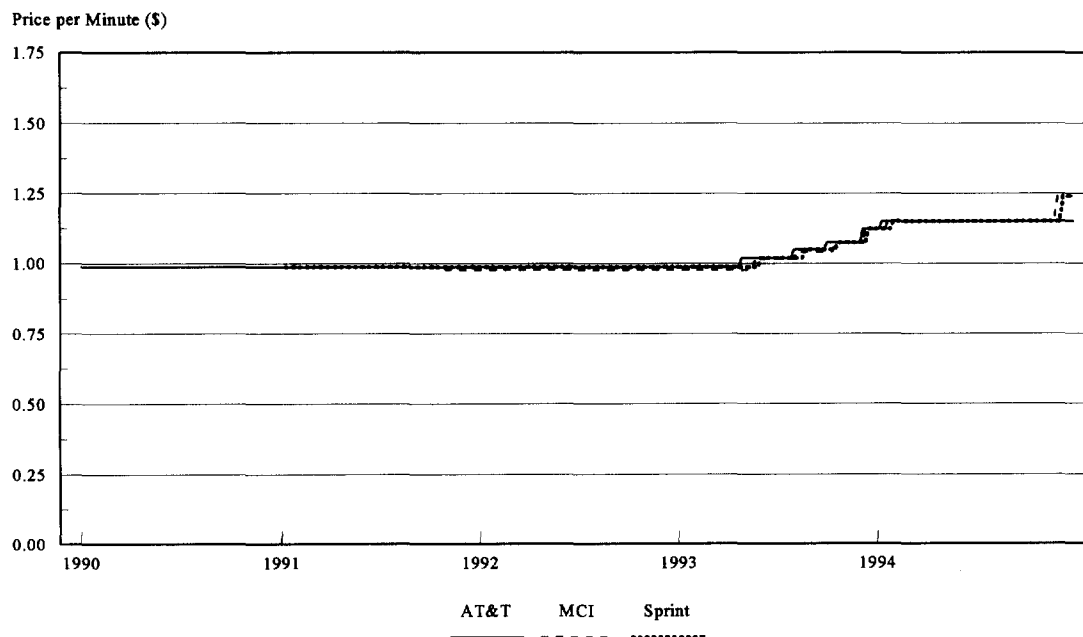


FIGURE SEVEN  
 STANDARD IMTS INDEX PRICES FOR  
 LONG-DISTANCE CALLS FROM U.S. TO JAPAN  
 (30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

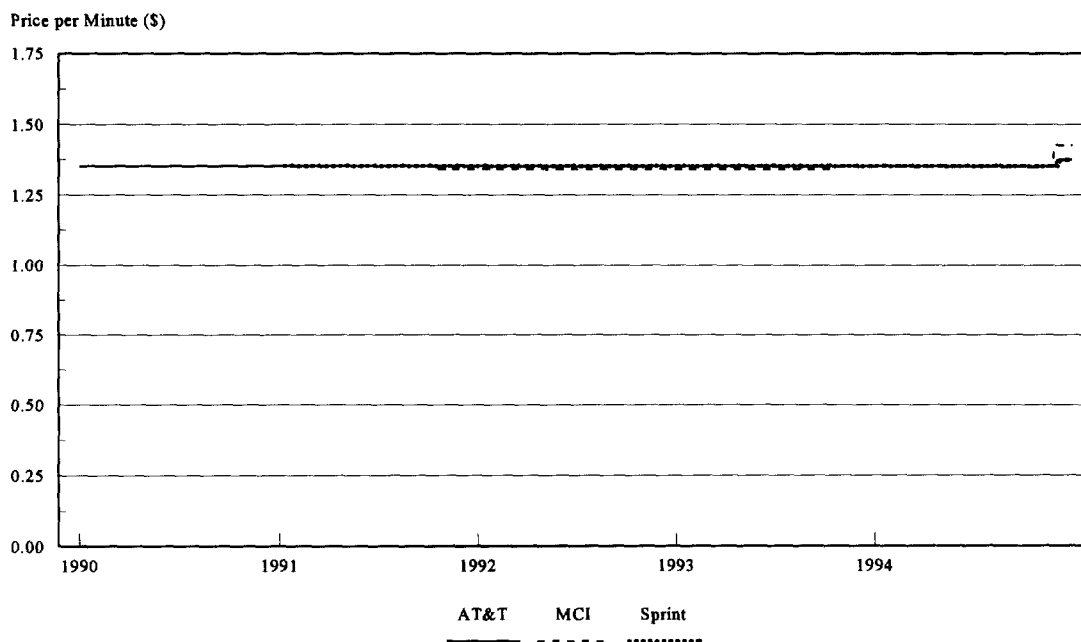


FIGURE EIGHT  
 STANDARD IMTS INDEX PRICES FOR  
 LONG-DISTANCE CALLS FROM U.S. TO DOMINICAN REPUBLIC  
 (40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

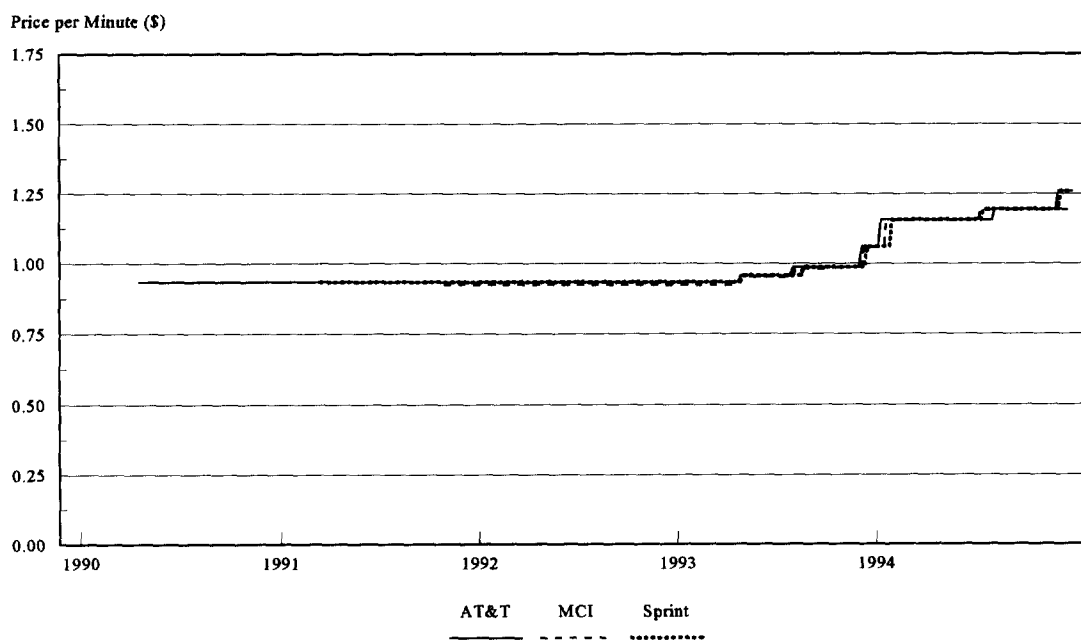


FIGURE NINE  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO CANADA  
(40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

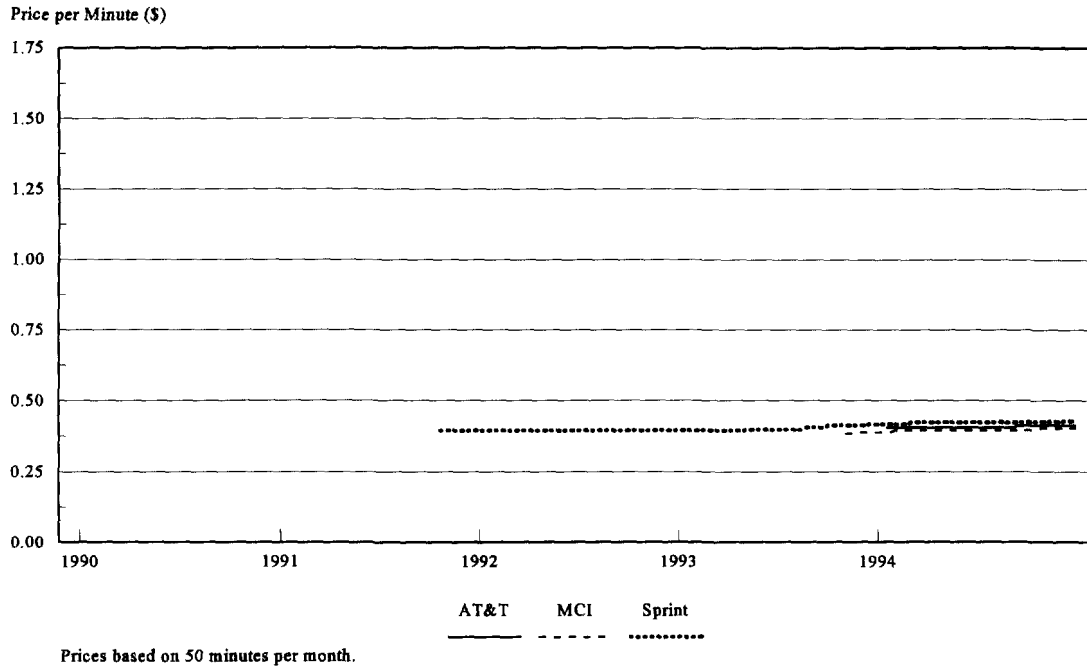


FIGURE TEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO MEXICO  
(40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

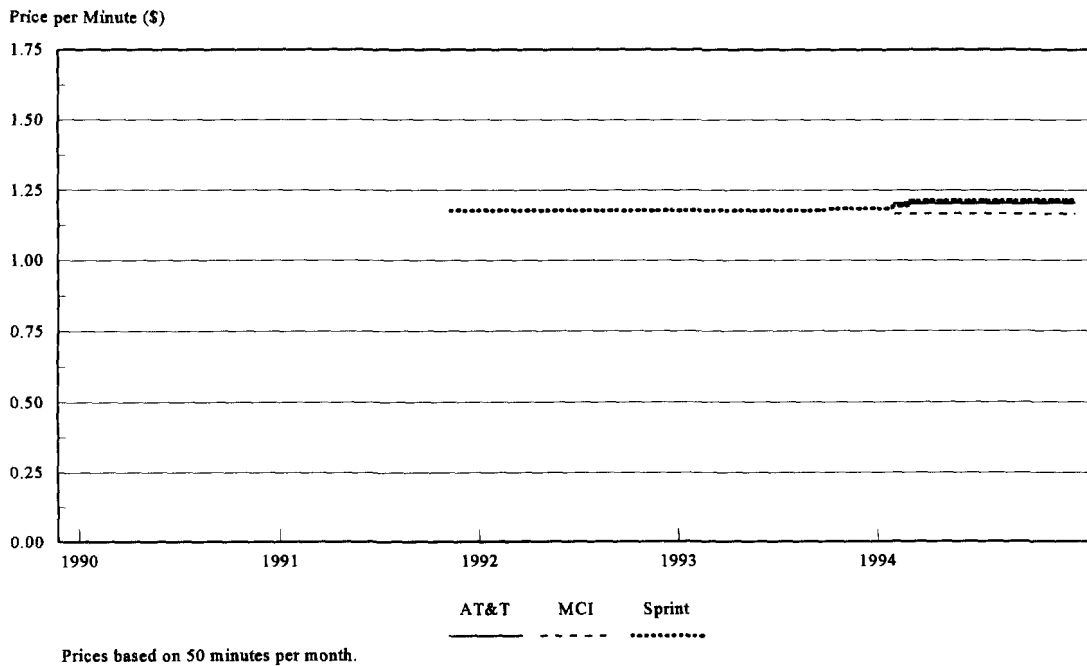


FIGURE ELEVEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO UNITED KINGDOM  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

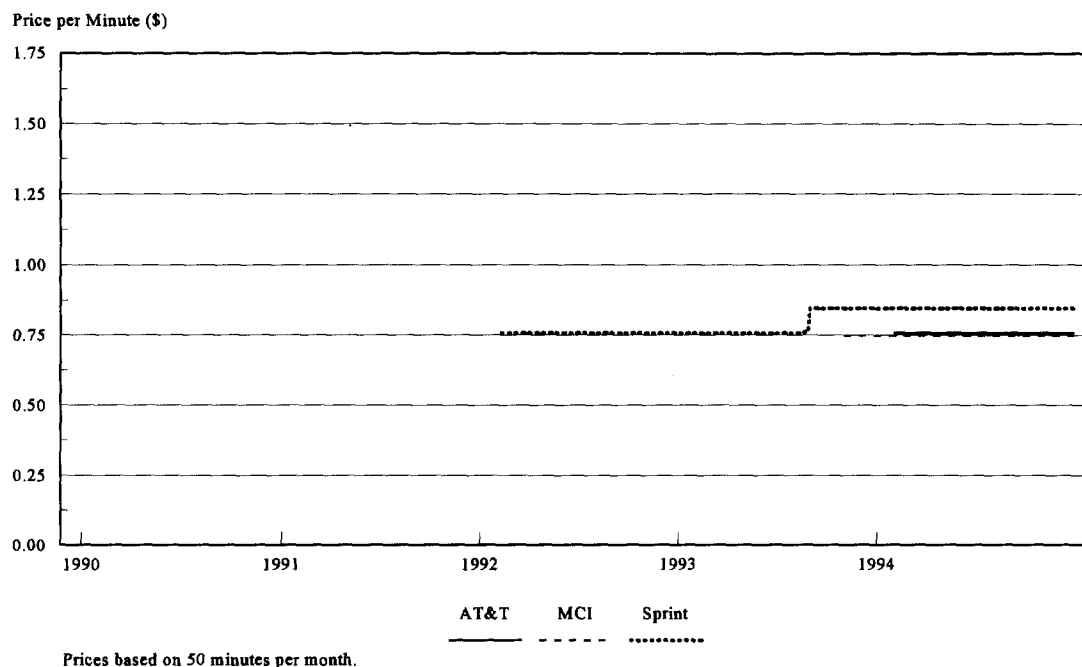


FIGURE TWELVE  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO GERMANY  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

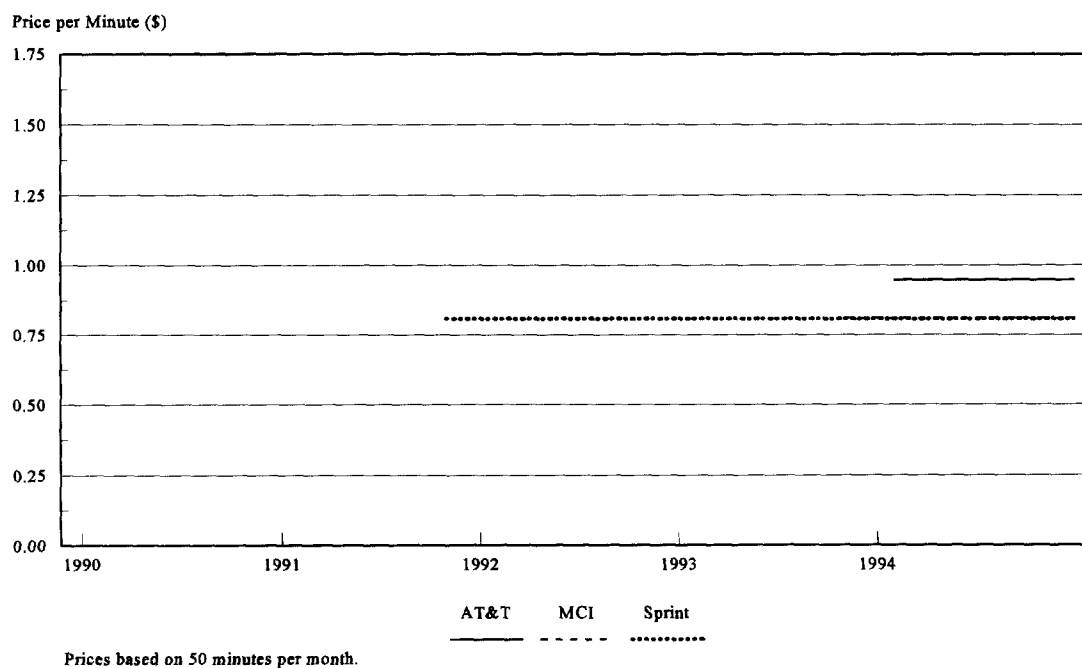


FIGURE THIRTEEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO FRANCE  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

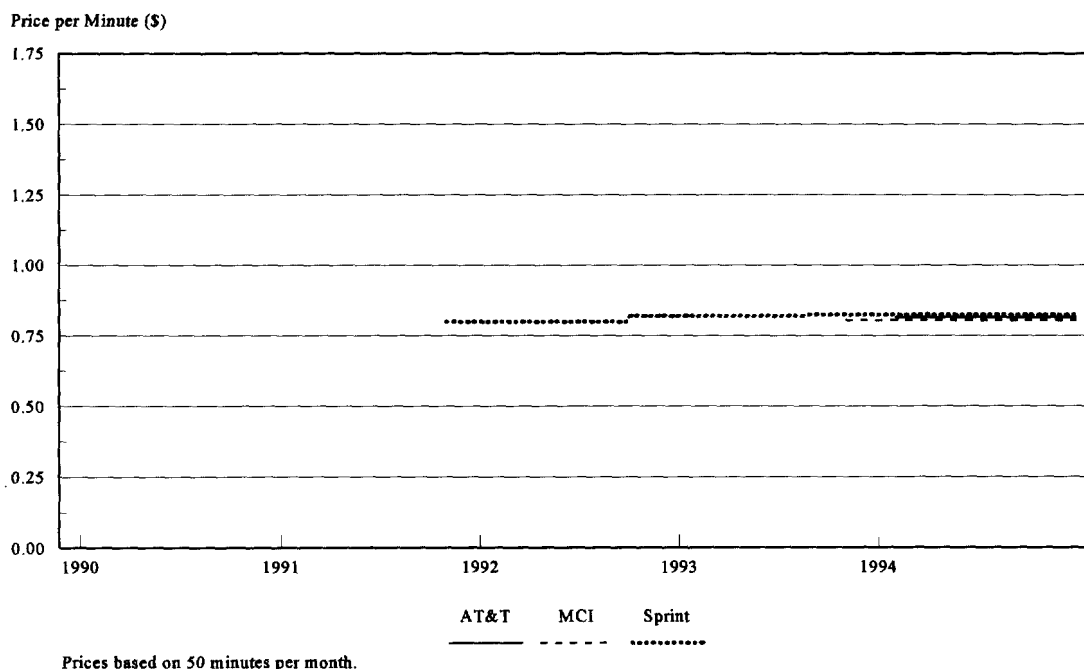


FIGURE FOURTEEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO ITALY  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

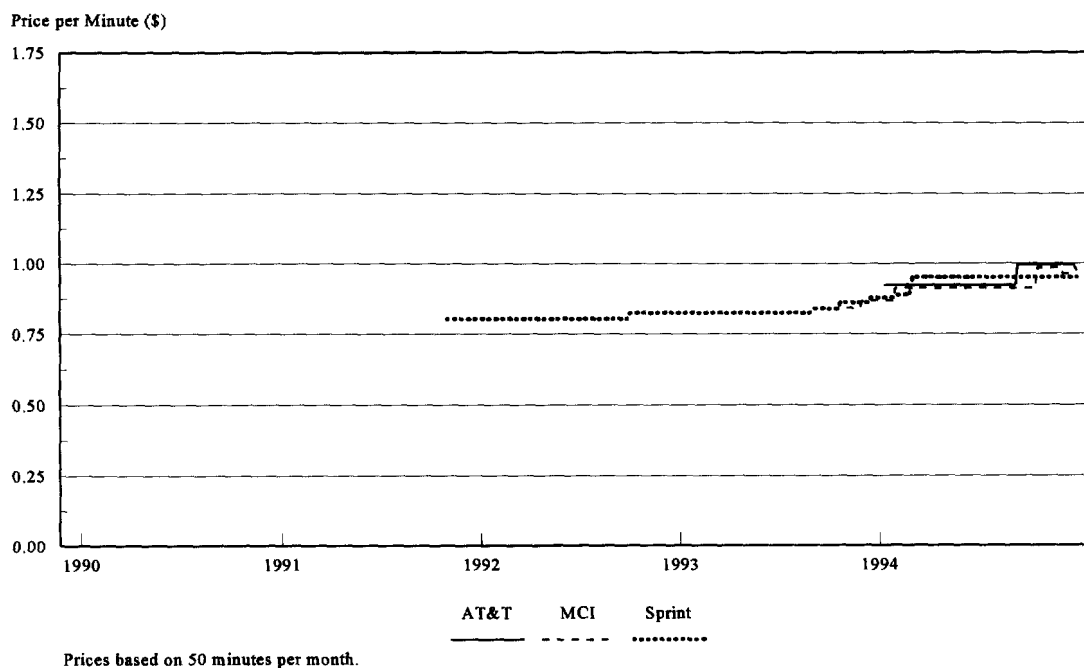


FIGURE FIFTEEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO JAPAN  
(30% STANDARD, 50% DISCOUNT, AND 20% ECONOMY)

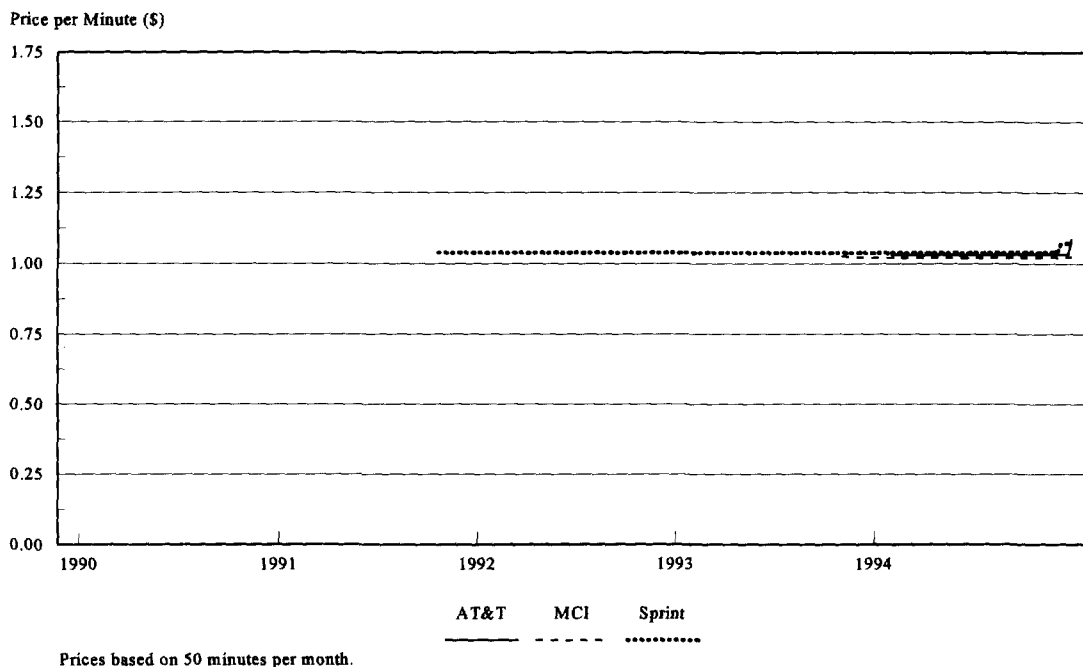


FIGURE SIXTEEN  
DISCOUNT IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO DOMINICAN REPUBLIC  
(40% STANDARD, 30% DISCOUNT, AND 30% ECONOMY)

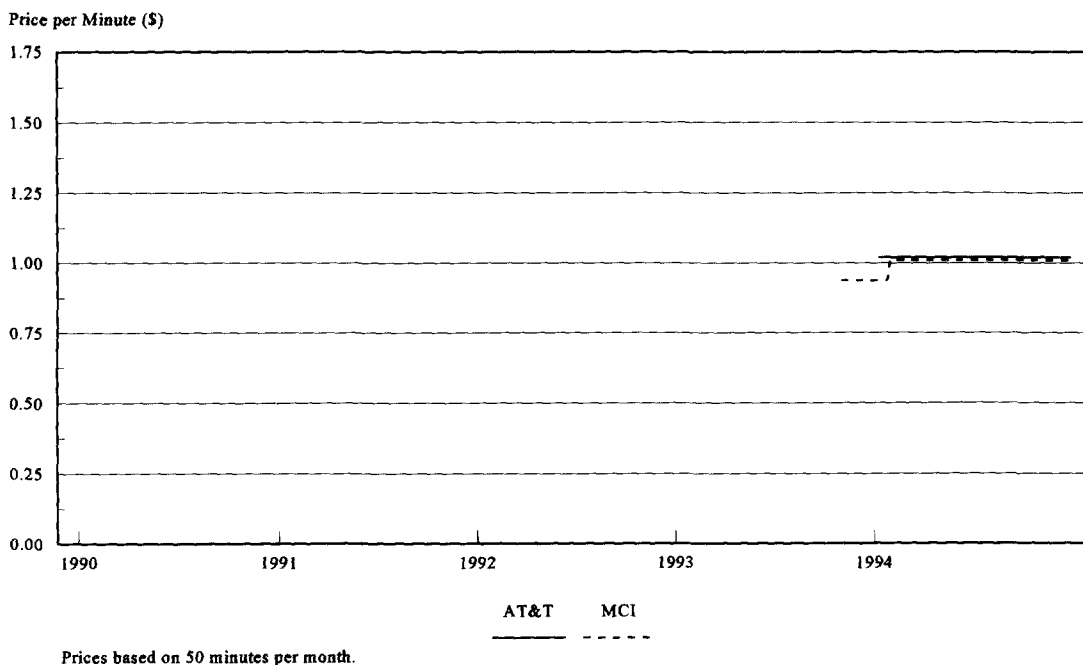


FIGURE SEVENTEEN  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO CANADA  
(85% STANDARD, 10% DISCOUNT, AND 5% ECONOMY)

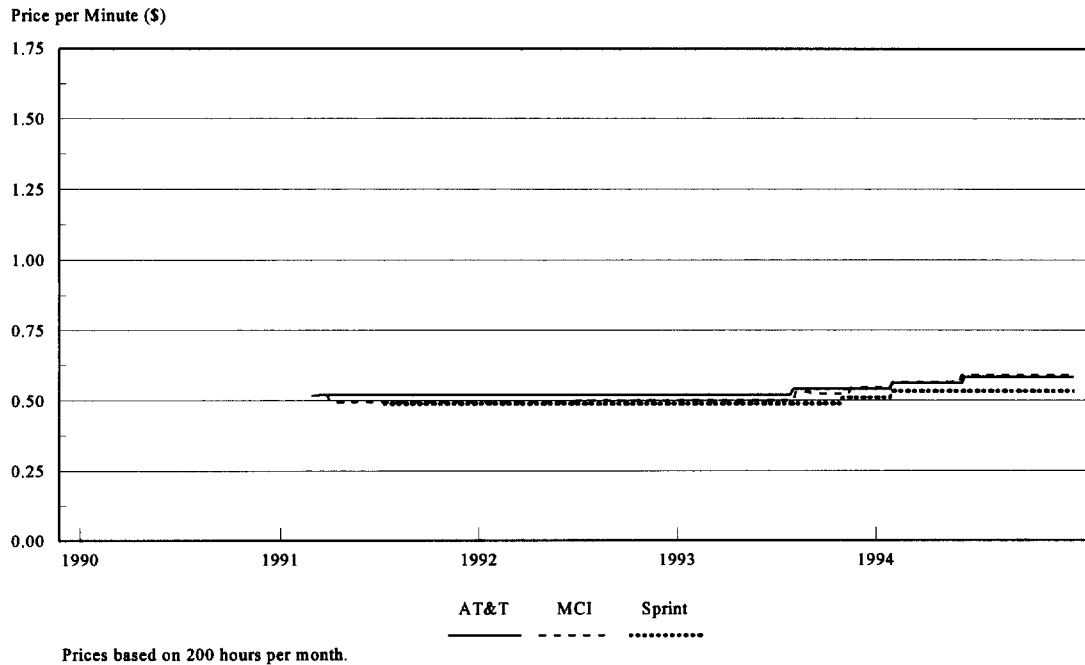


FIGURE EIGHTEEN  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO MEXICO  
(85% STANDARD, 10% DISCOUNT, AND 5% ECONOMY)

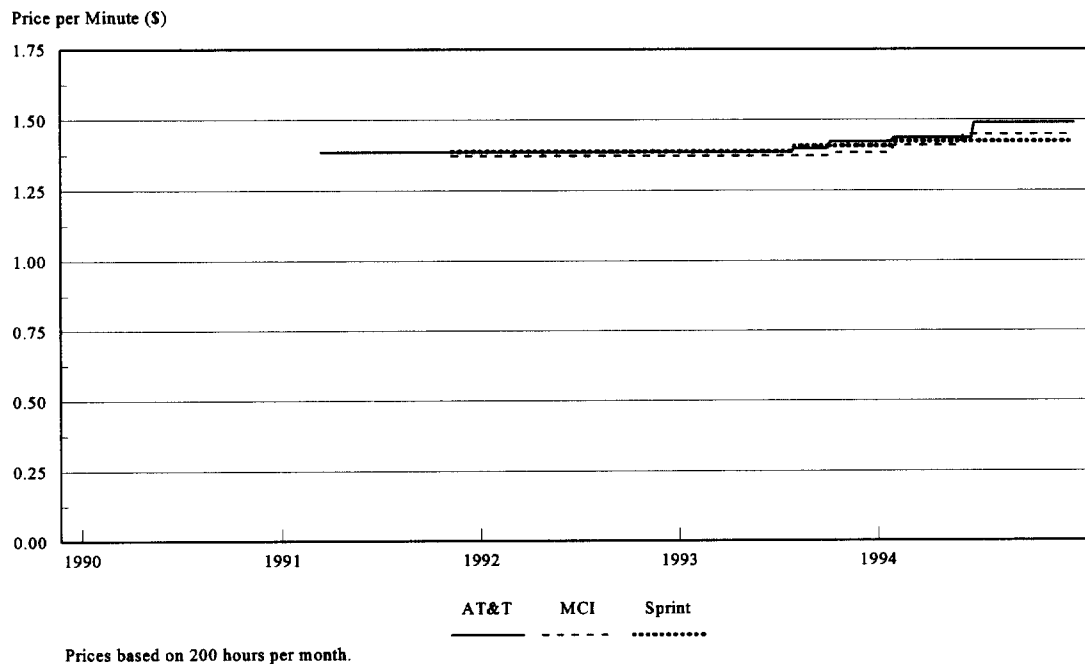


FIGURE NINETEEN  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO UNITED KINGDOM  
(60% STANDARD, 20% DISCOUNT, AND 20% ECONOMY)

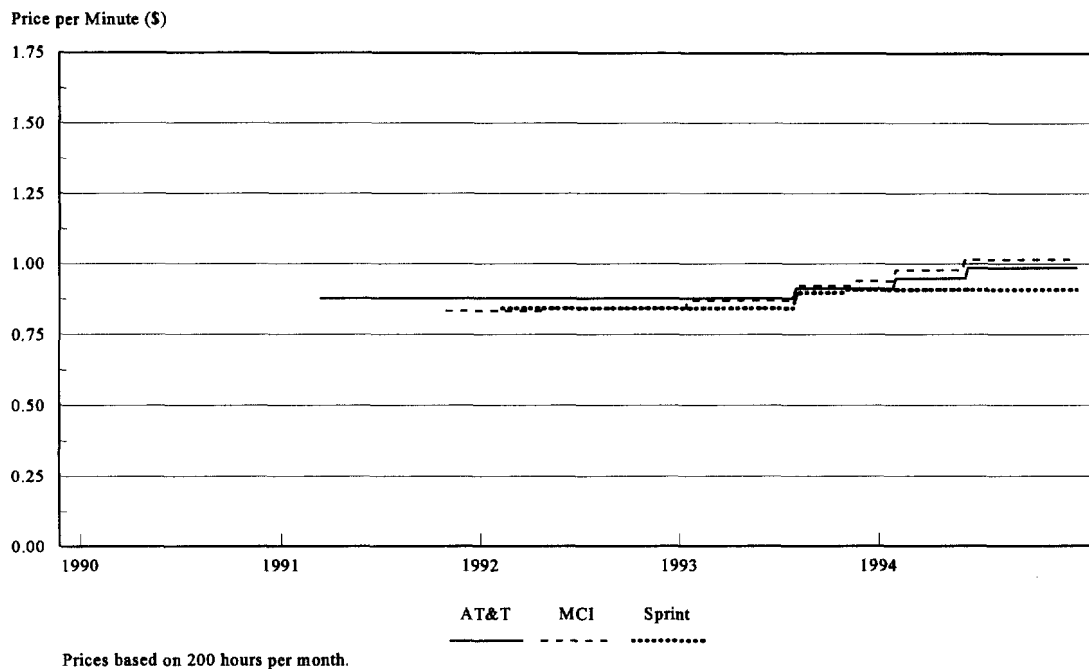


FIGURE TWENTY  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO GERMANY  
(60% STANDARD, 20% DISCOUNT, AND 20% ECONOMY)

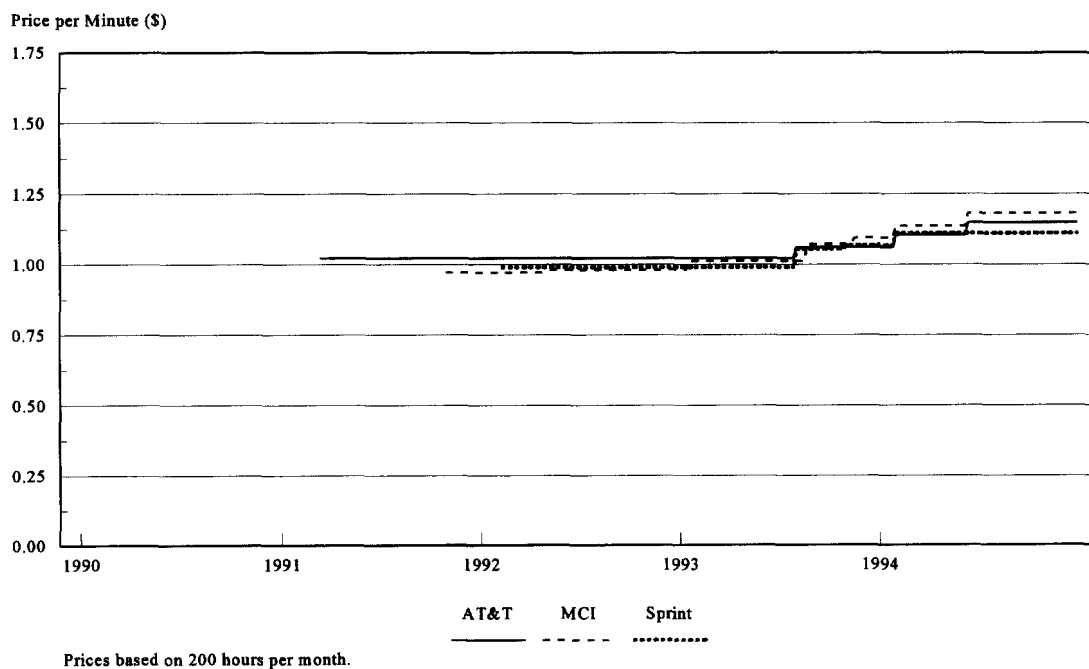


FIGURE TWENTY-ONE  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO FRANCE  
(60% STANDARD, 20% DISCOUNT, AND 20% ECONOMY)

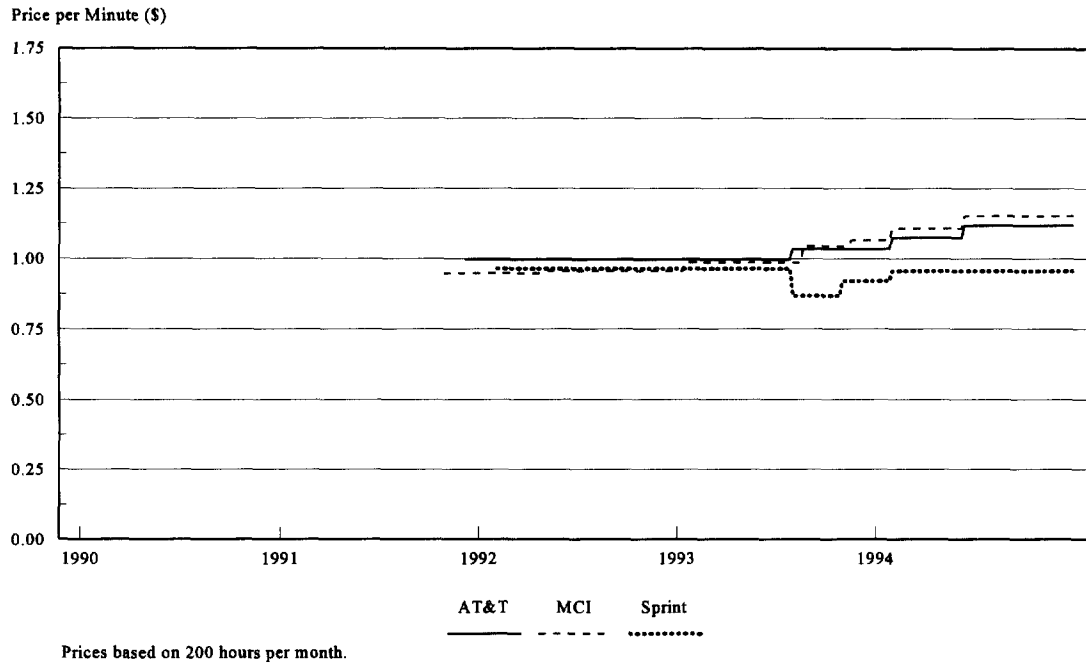


FIGURE TWENTY-TWO  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO ITALY  
(60% STANDARD, 20% DISCOUNT, AND 20% ECONOMY)

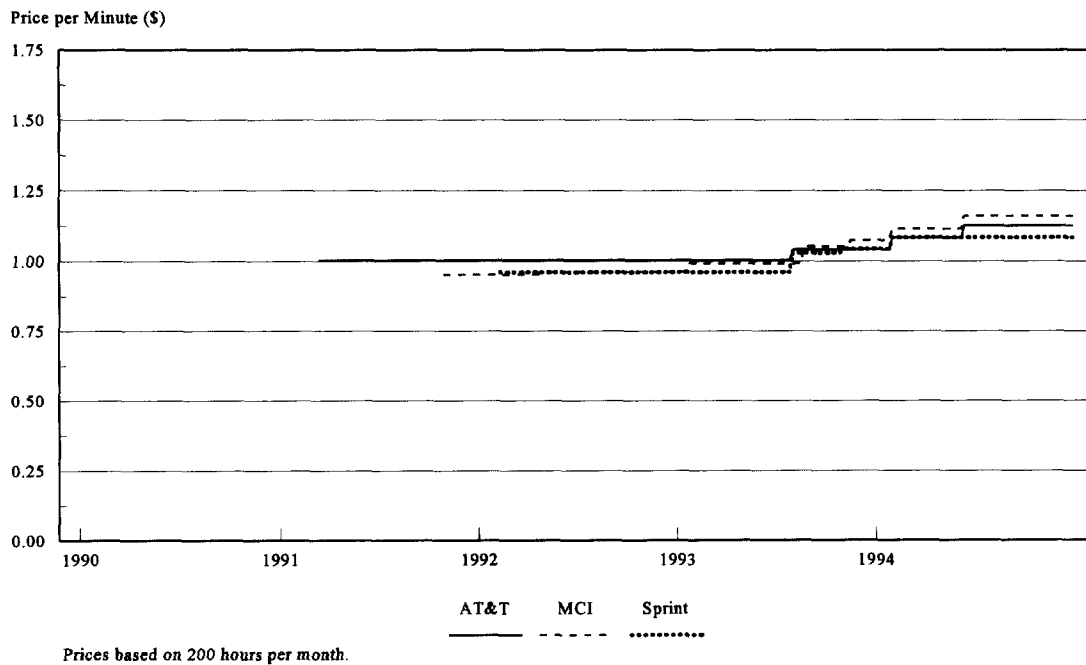


FIGURE TWENTY-THREE  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO JAPAN  
(75% STANDARD, 25% DISCOUNT, AND 0% ECONOMY)

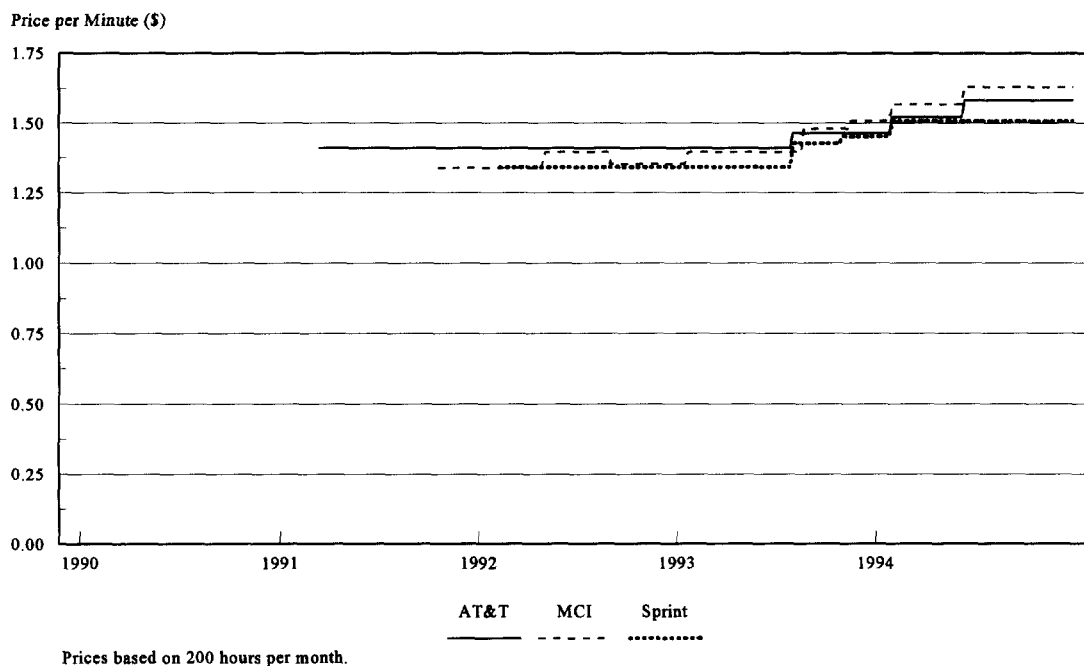
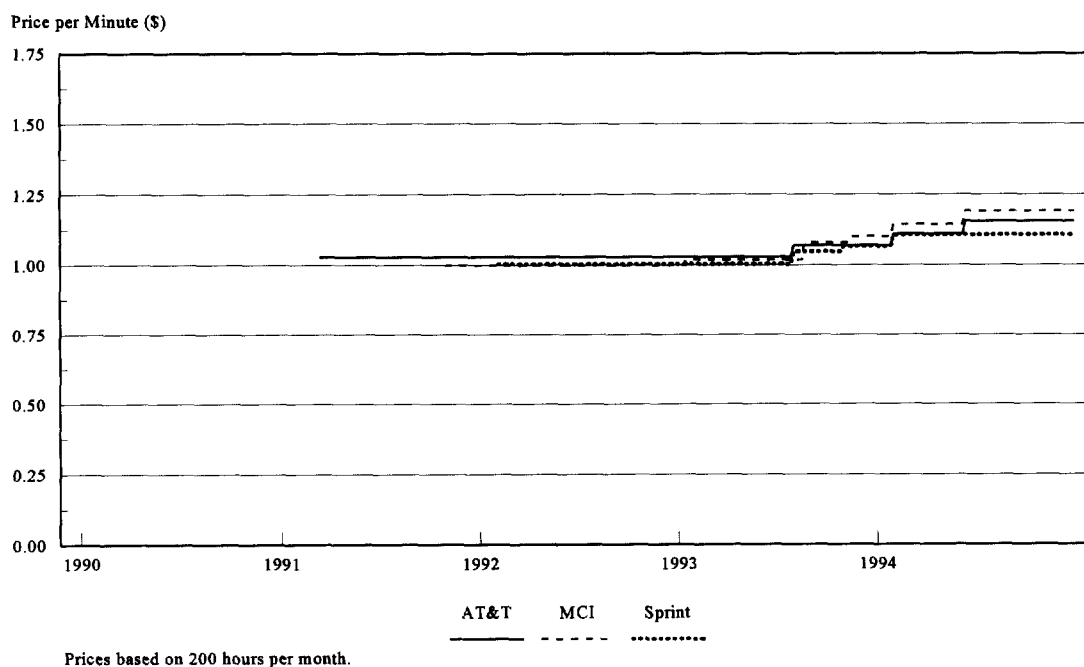


FIGURE TWENTY-FOUR  
IWATS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO DOMINICAN REPUBLIC  
(85% STANDARD, 10% DISCOUNT, AND 5% ECONOMY)





## APPENDIX FOUR

### SENSITIVITY ANALYSIS OF PRICE CALCULATIONS

International calls billed in the United States are charged prices that depend on when the calls are made with respect to the United States Eastern Standard time zone. Specifically, calls to each foreign country are billed under specified “standard,” “discount,” and “economy” rates. For example, standard rates are charged for calls from the United States to the United Kingdom for the period 7 a.m. to 1 p.m. EST, while standard rates for calls from the United States to Japan are charged for the period 2 p.m. to 8 p.m. EST.

To determine whether the price-cost margin calculations were sensitive to assumptions regarding the distribution of international calls across the three time-of-day periods, a sensitivity analysis was conducted. For each country pair, two time-of-day distributions were selected. Carriers’ prices per minute for each country pair were calculated for Standard IMTS, Discount IMTS, and IWATS using these sensitivity distributions.

Given these different rate categories and time-of-day periods, Tables One and Two show the base-case assumptions regarding time-of-day usage, as well as the two sensitivity runs for each of the country pairs. For example, the first row shows that the base-case, time-of-day distribution for calls from the United States to Canada assumes that 40 percent of the calls are made during the standard time period, 30 percent during the discount time period, and 30 percent during the economy time period.

**TABLE ONE**  
**STANDARD IMTS AND DISCOUNT IMTS CALLING PATTERN DISTRIBUTION**

| Country Pair                        | Calling Distribution |          |         |
|-------------------------------------|----------------------|----------|---------|
|                                     | Standard             | Discount | Economy |
| United States to Canada             |                      |          |         |
| Base Case                           | 40%                  | 30%      | 30%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to Mexico             |                      |          |         |
| Base Case                           | 40%                  | 30%      | 30%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to United Kingdom     |                      |          |         |
| Base Case                           | 30%                  | 50%      | 20%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to Germany            |                      |          |         |
| Base Case                           | 30%                  | 50%      | 20%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to Japan              |                      |          |         |
| Base Case                           | 30%                  | 50%      | 20%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to France             |                      |          |         |
| Base Case                           | 30%                  | 50%      | 20%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to Italy              |                      |          |         |
| Base Case                           | 30%                  | 50%      | 20%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |
| United States to Dominican Republic |                      |          |         |
| Base Case                           | 40%                  | 30%      | 30%     |
| Sensitivity Run One                 | 60%                  | 25%      | 15%     |
| Sensitivity Run Two                 | 20%                  | 30%      | 50%     |

TABLE TWO  
IWATS CALLING PATTERN DISTRIBUTION

| Country Pair                        | Calling Distribution |          |         |
|-------------------------------------|----------------------|----------|---------|
|                                     | Standard             | Discount | Economy |
| United States to Canada             |                      |          |         |
| Base Case                           | 85%                  | 10%      | 5%      |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 95%                  | 5%       | 0%      |
| United States to Mexico             |                      |          |         |
| Base Case                           | 85%                  | 10%      | 5%      |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 95%                  | 5%       | 0%      |
| United States to United Kingdom     |                      |          |         |
| Base Case                           | 60%                  | 20%      | 20%     |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 50%                  | 30%      | 20%     |
| United States to Germany            |                      |          |         |
| Base Case                           | 60%                  | 20%      | 20%     |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 50%                  | 30%      | 20%     |
| United States to Japan              |                      |          |         |
| Base Case                           | 75%                  | 25%      | 0%      |
| Sensitivity Run One                 | 85%                  | 10%      | 5%      |
| Sensitivity Run Two                 | 60%                  | 20%      | 20%     |
| United States to France             |                      |          |         |
| Base Case                           | 60%                  | 20%      | 20%     |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 50%                  | 30%      | 20%     |
| United States to Italy              |                      |          |         |
| Base Case                           | 60%                  | 20%      | 20%     |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 50%                  | 30%      | 20%     |
| United States to Dominican Republic |                      |          |         |
| Base Case                           | 85%                  | 10%      | 5%      |
| Sensitivity Run One                 | 75%                  | 10%      | 15%     |
| Sensitivity Run Two                 | 95%                  | 5%       | 0%      |

In the case of Standard IMTS, the first sensitivity run assumes that a customer makes 60 percent of calls during the standard period, 25 percent of calls during the discount period, and 15 percent of calls during the economy period. As can be seen in Figures One to Eight, the overall price per minute across the country pairs exceeds the price under the Base Case (see Appendix Three, Figures One to Eight). This result is expected as 60 percent of calls in the first sensitivity distribution were placed during the more expensive standard period, while the Base Case assumes that only 30 or 40 percent of calls were made during the standard period. The second sensitivity distribution assumes that only 20 percent of calls are made during the standard period, and that half of all calls are made during the less expensive economy period. As such, the price per minute is lower than under the Base Case (see Figures Nine to Sixteen). Notice that the change in prices per minute under the Base Case and the two sensitivity runs move in the same manner over time. Therefore, the results for standard IMTS are not sensitive to changes in calling pattern distributions.

Discount IMTS prices per minute were calculated under four alternative sensitivity distributions, two based on time-of-day calling patterns (identical to those mentioned above for Standard IMTS) and two based on usage levels. The results from the first two sensitivity runs mirror the results for Standard MTS under the two sensitivity distributions. Again, the price per minute under the first sensitivity distribution is higher than the price per minute under the Base Case assumption. This results from the fact that more calls are made during the more expensive standard period than under the Base Case. (See Figures Seventeen to Twenty-Four for prices for the first sensitivity run and see Appendix Three, Figures Nine to Sixteen for prices for the Base Case). Similarly, because the second sensitivity distribution assumes that calls are highly concentrated in the less expensive Discount and Economy time periods, the prices per minute are lower than under the Base Case (see Figures Twenty-Five to Thirty-Two).

In addition to the two time-of-day variations, a sensitivity analysis was conducted assuming alternative on usage levels. The assumed level of usage is potentially important, as discounts often vary with usage. Recall that the Base Case calling distribution assumed that a

customer averaged 50 minutes per month of calls. The third sensitivity run conducted uses the Base Case calling distribution but assumes only 30 minutes per month. As would be expected, the discounts are not as great as under the standard usage level of 50 minutes, and therefore the price per minute across the country pairs is higher. (See Figures Thirty-Three to Forty for a usage level of 30 minutes per month and Appendix Three, Figures Nine to Sixteen for the Base Case with a usage level of 50 minutes per month). The fourth sensitivity run assumes the Base Case calling distribution and a usage per month of 100 minutes. Notice that these prices are lower than those in the Base Case (see Figures Forty-One to Forty-Eight).

These sensitivity runs show that although prices may change slightly as a result of alternative assumptions about time-of-day calling patterns and usage levels, the prices calculated under the sensitivity runs and under the Base Case change in the same direction over time. Therefore, inferences about price-cost margins for discount prices are not sensitive to changes in the Base Case assumptions.

The sensitivity analysis of IWATS prices per minute assumes three alternative sensitivity distribution: two based on time-of-day assumptions and one based on usage level. Figures Forty-Nine to Sixty-Four detail the results of the sensitivity runs which assume alternative time-of-day distributions, while Figures Sixty-Five to Seventy-Two detail the results of the sensitivity runs which assume the same time-of-day distributions as in the Base Case and usage level of 100 minutes.

The results are similar to those presented for Standard and Discount IMTS rates. For those sensitivity runs that assume more calls during the Standard time, the prices per minute are higher than under the Base Case (see Appendix Three, Figures Seventeen to Twenty-Four for the Base Case). Alternatively, for sensitivity runs assuming more calls made during Discount or Economy periods, the prices per minute are lower than under the Base Case. Finally, the price per minute calculated under the assumption that a customer makes on average 100 minutes of calls per month is lower than the prices calculated under the Base Case assumptions.

Again, notice that the price per minute of IWATS service does vary slightly as the underlying calling distribution changes. However, the prices calculated under the sensitivity distributions move over time with the prices per minute under the Base Case assumptions. As such, an analysis of the movement of price-cost margins over time is not sensitive to assumptions about the distribution of a customer's calls.

FIGURE ONE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO CANADA  
(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)

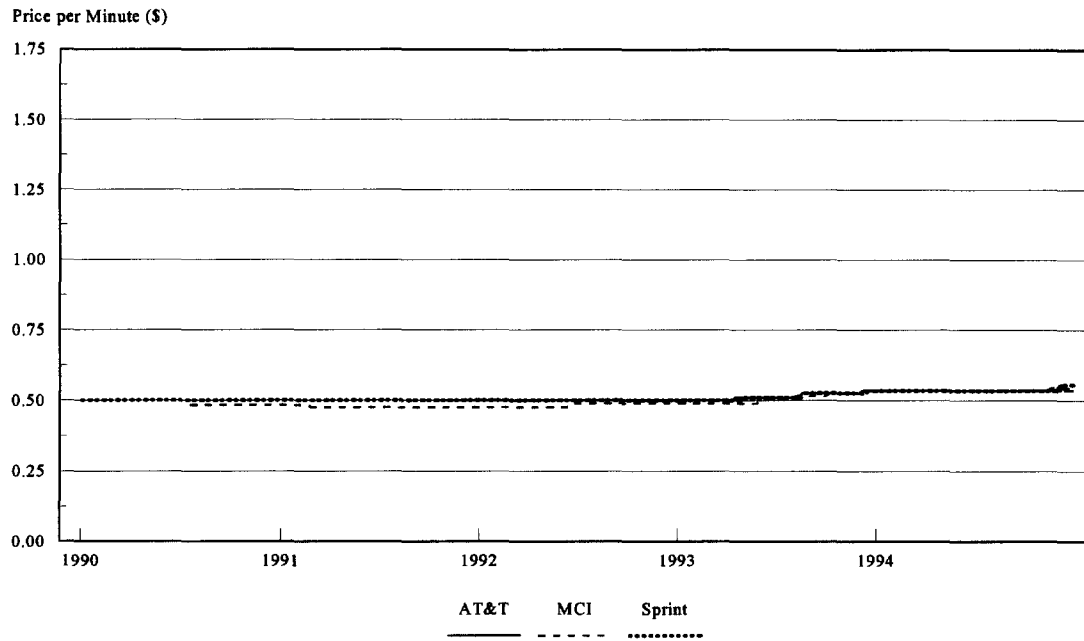
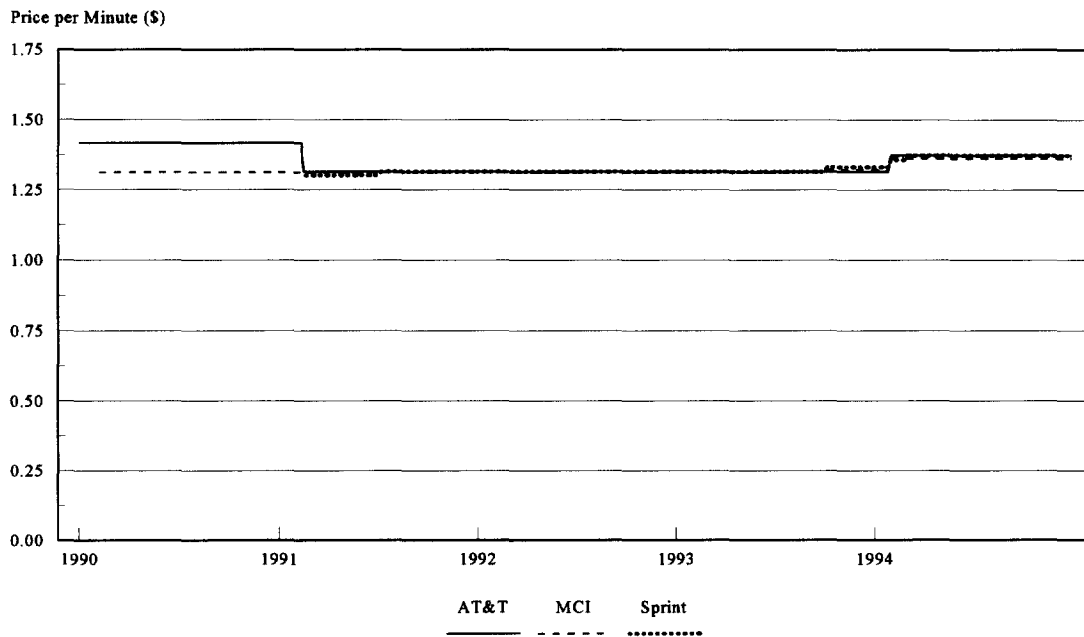
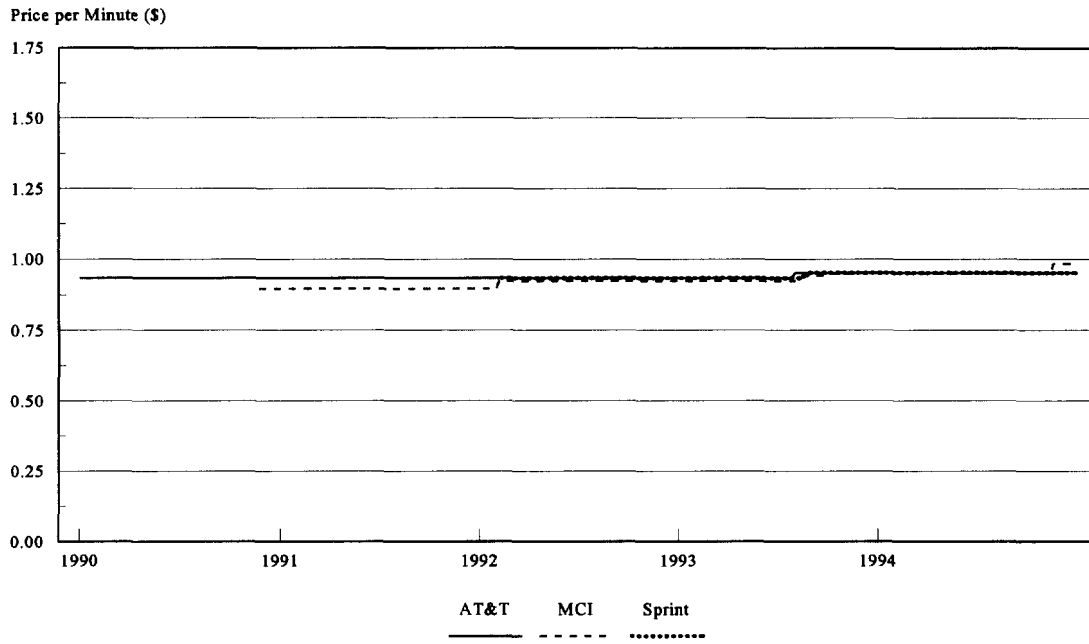


FIGURE TWO  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO MEXICO  
(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)



**FIGURE THREE**  
**STANDARD IMTS INDEX PRICES FOR**  
**LONG-DISTANCE CALLS FROM U.S. TO UNITED KINGDOM**  
**(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)**



**FIGURE FOUR**  
**STANDARD IMTS INDEX PRICES FOR**  
**LONG-DISTANCE CALLS FROM U.S. TO GERMANY**  
**(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)**

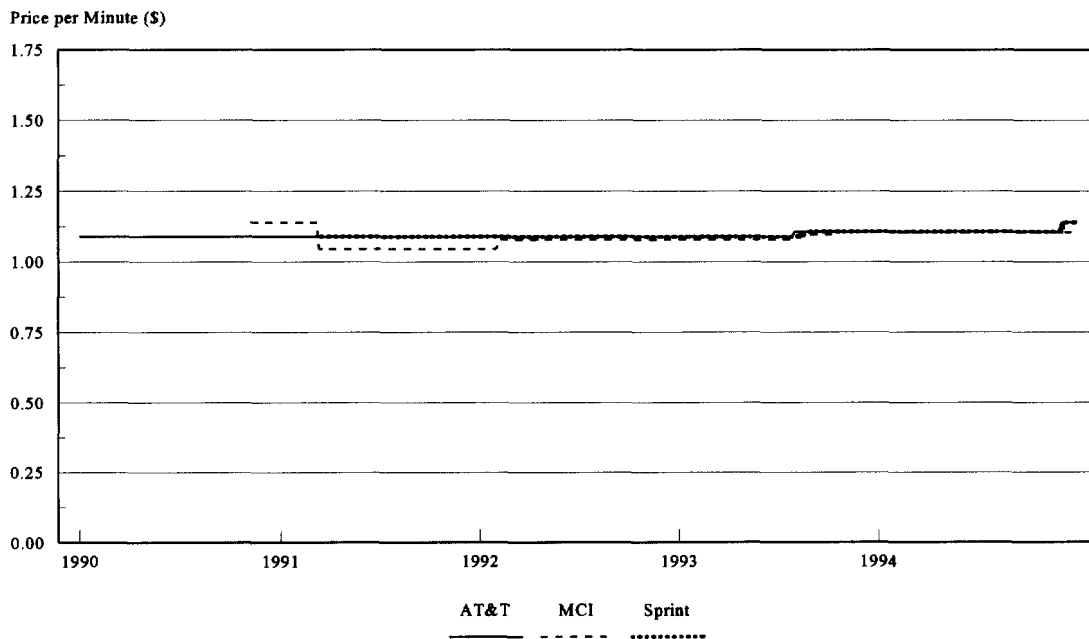


FIGURE FIVE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO FRANCE  
(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)

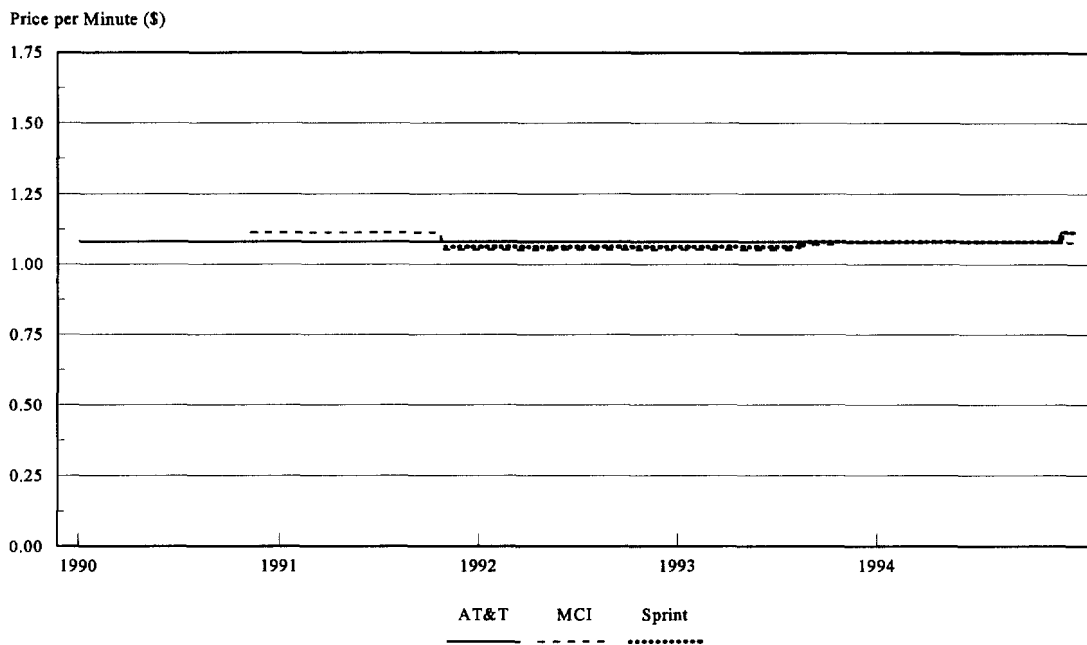
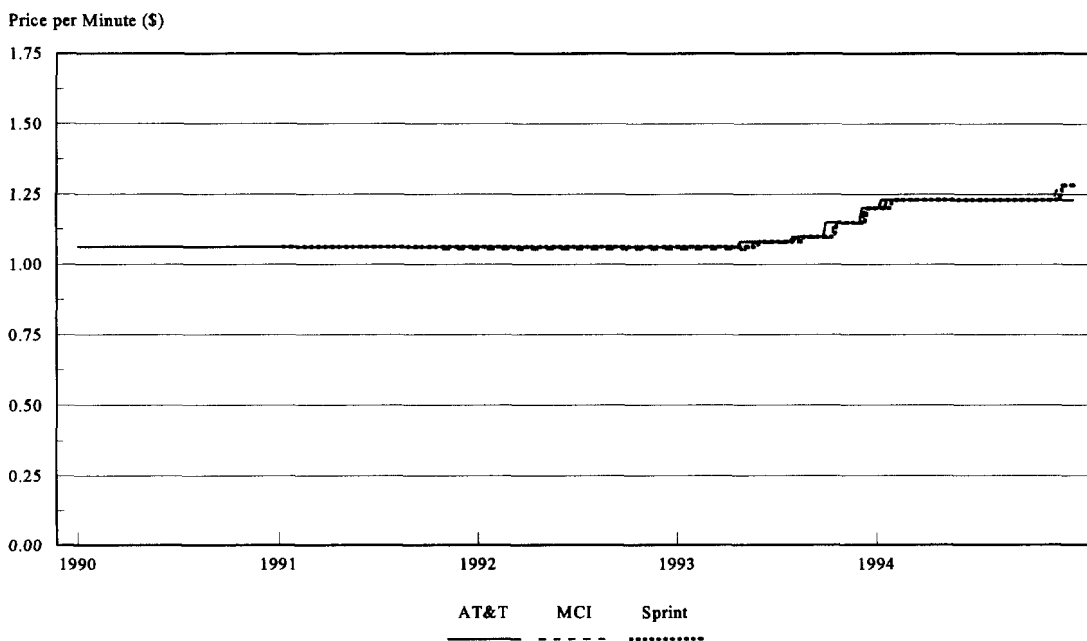
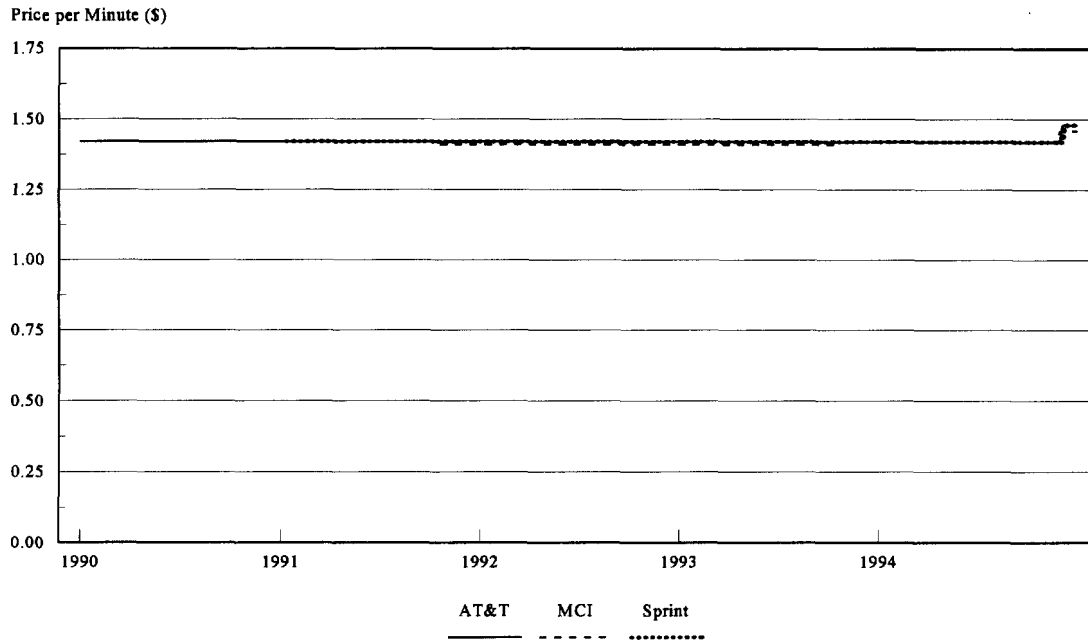


FIGURE SIX  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO ITALY  
(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)



**FIGURE SEVEN**  
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**(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)**



**FIGURE EIGHT**  
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**LONG-DISTANCE CALLS FROM U.S. TO DOMINICAN REPUBLIC**  
**(60% STANDARD, 25% DISCOUNT, AND 15% ECONOMY)**

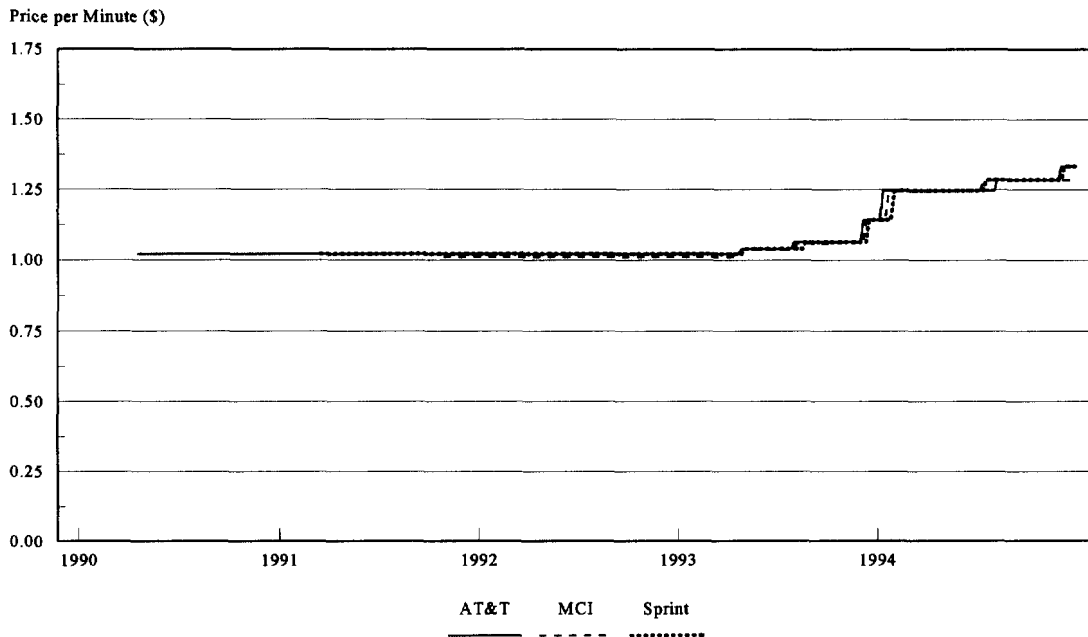


FIGURE NINE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO CANADA  
(20% STANDARD, 30% DISCOUNT, AND 50% ECONOMY)

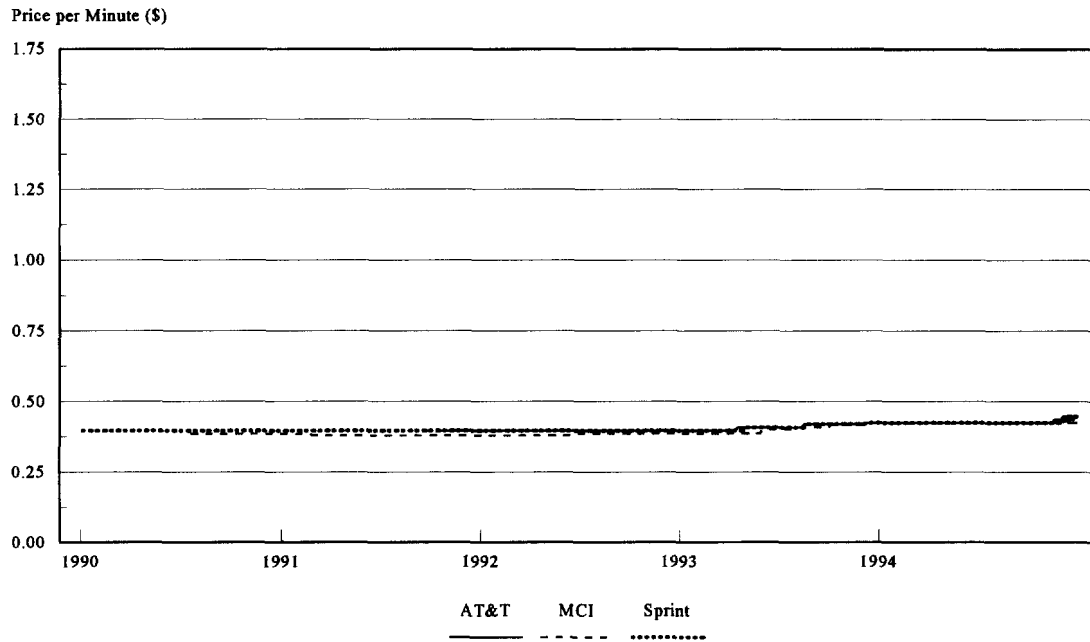


FIGURE TEN  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO MEXICO  
(20% STANDARD, 30% DISCOUNT, AND 50% ECONOMY)

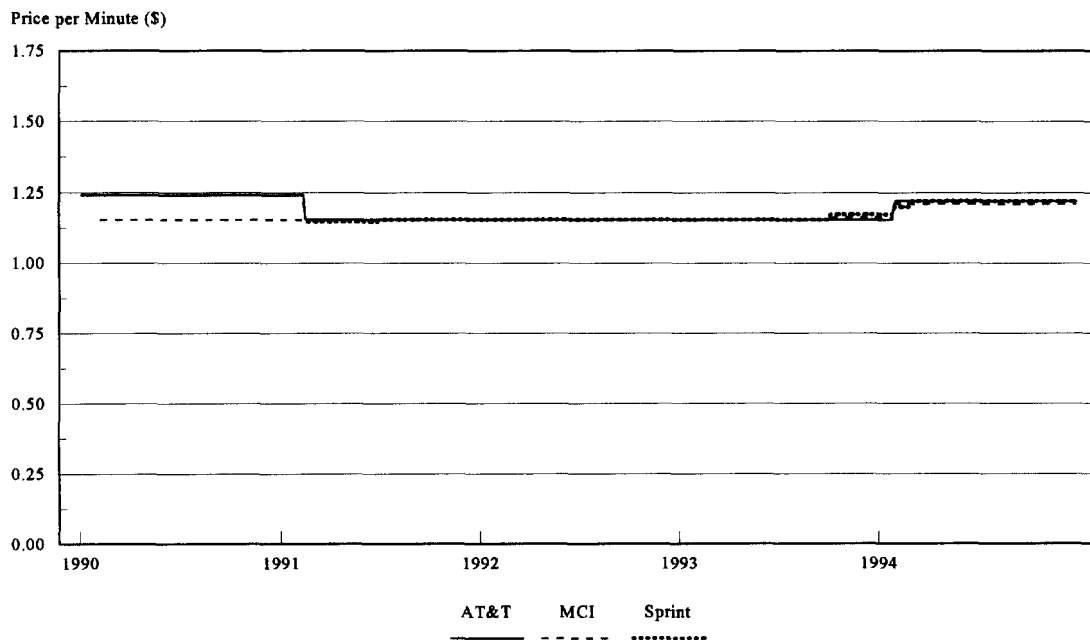


FIGURE ELEVEN  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO UNITED KINGDOM  
(20% STANDARD, 30% DISCOUNT, AND 50% ECONOMY)

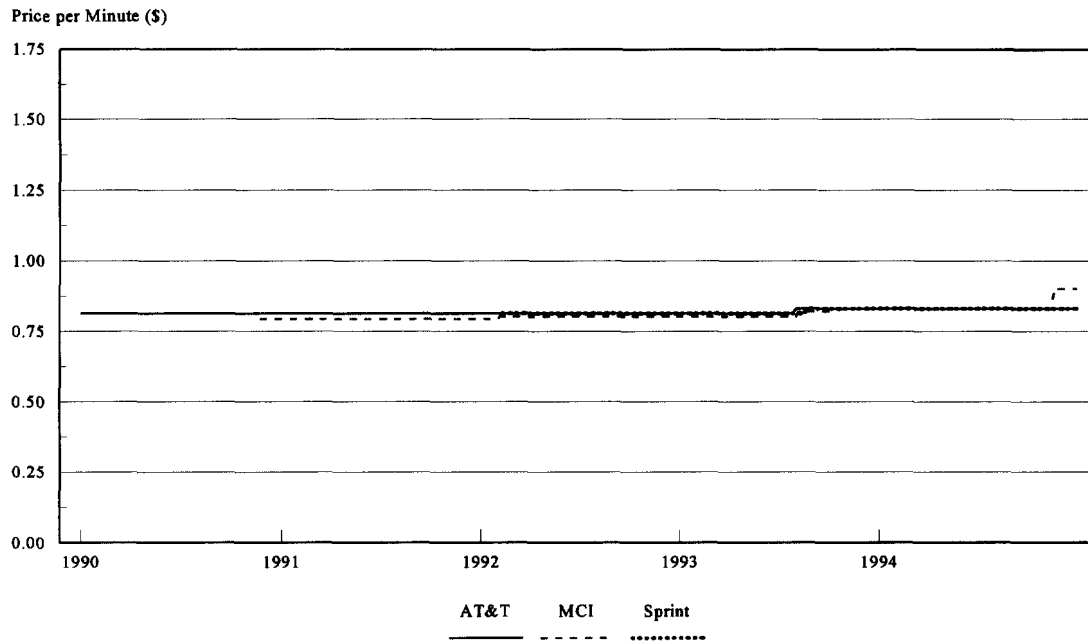


FIGURE TWELVE  
STANDARD IMTS INDEX PRICES FOR  
LONG-DISTANCE CALLS FROM U.S. TO GERMANY  
(20% STANDARD, 30% DISCOUNT, AND 50% ECONOMY)

